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| 17 COCAINE AND LOCAL ANESTHETIC METHODOLOGY | Page 1 of 4 |
| <div>Division of Forensic Science</div> <div>CONTROLLED SUBSTANCES PROCEDURES MANUAL</div> | Amendment Designator: A |
| | Effective Date: 7-August-2006 |
| <div>17 COCAINE AND LOCAL ANESTHETIC METHODOLOGY</div> <div> <p>17.1 Brief Pharmacology: Depresses sensation of pain, may cause CNS stimulation producing excitement and erratic behavior.</p> <p>17.2 Drug Group Examples: Cocaine, procaine, benzocaine, tetracaine, lidocaine, as well as the isomers of cocaine such as pseudococaine, allococaine, pseudoallococaine.</p> <p>17.3 Scheduling:</p> <ul style="list-style-type: none"> Schedule II – cocaine Schedule VI or non-controlled, depending on their packaging – procaine, lidocaine, benzocaine and tetracaine <p>17.4 Extraction:</p> <p>17.4.1 May be extracted from basic aqueous solutions with organic solvents.</p> <p>17.4.2 May be dry extracted with methanol or other organic solvents.</p> <p>17.5 Color Test Results:</p> <p>17.1.1 Co(SCN)_2 Results</p> <ul style="list-style-type: none"> Cocaine HCl, lidocaine, procaine, tetracaine, benzocaine – blue precipitate PCP, heroin and other compounds, including flour – weak blue <p>17.1.2 SnCl_2 Modification to Co(SCN)_2 Results</p> <p>17.5.1.1 This test can help to distinguish between some “caines”.</p> <ul style="list-style-type: none"> Cocaine salt + Co(SCN)_2 – blue precipitate forms If SnCl_2 is added to the spot well, the blue color remains in the presence of cocaine salt, but the blue color will fade with some other “caines”. <p>17.5.1.2 This test may also aid in distinguishing cocaine base:</p> <ul style="list-style-type: none"> Cocaine base + Co(SCN)_2 – no reaction Upon the addition of the SnCl_2 reagent which contains HCl, a blue precipitate readily forms and remains. <p>17.5.2 Scott’s Modification of Ruybal’s test for Cocaine Results</p> <p>17.5.2.1 May get false positive with lidocaine and diethylpropion.</p> <p>17.1.2.1 Sample is placed in Co(SCN)_2 solution to give blue precipitate. Concentrated HCl is added (1 drop) to make the precipitate disappear and give a pink solution. CHCl_3 is added, and the mixture is shaken. The CHCl_3 layer turns blue in the presence of cocaine.</p> <p>17.1.3 Bate’s Modification to Co(SCN)_2 Results</p> <p>17.5.2.2 This test may aid in distinguishing cocaine base from its salts:</p> <ul style="list-style-type: none"> Cocaine base + Co(SCN)_2 – No Reaction </div> | |

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| <div style="text-align: center;"> <ul style="list-style-type: none"> • Upon the addition of Marquis reagent, a blue precipitate readily forms and remains. </div> <p>17.6 TLC:</p> <p>17.6.1 Baths: TLC1, TLC2, TLC3, TLC4 and TLC5 are recommended.</p> <ul style="list-style-type: none"> • PCP migrates similar to cocaine if the baths are not fresh or if samples are very concentrated. • Cocaine and tetracaine separate if baths are fresh. • Lidocaine migrates close to cocaine in 18:1 but not in 9:1. <p>17.6.2 Detection sprays:</p> <p>17.6.2.1 Iodoplatinate, results may be enhanced by overspraying with ceric sulfate.</p> <p>17.6.2.2 Ehrlich's: Procaine and benzocaine are yellow if the plate is oversprayed.</p> <p>17.7 UV:</p> <p>17.7.1 Cocaine – maximum at 232 nm in acid</p> <p>17.8 FTIR:</p> <p>17.8.1 FTIR is the most easily performed and definitive method for distinguishing cocaine base from its salts.</p> <p>17.8.2 Base determinations will be routinely performed in the following types of cases:</p> <ul style="list-style-type: none"> • The weight of cocaine is over 250 grams • The officer has requested cocaine base analysis for possible federal prosecution • Task Force or Interdiction cases, when required • Cases from certain jurisdictions involving firearms <p>17.8.3 Sample preparation:</p> <ul style="list-style-type: none"> • KBr pellet • Reflectance / Absorbance with Microscope attachment • ATR <p>17.8.4 Dry extraction with high purity n-pentane or n-hexane will distinguish cocaine base from its salts.</p> <p>17.8.5 Further extractions based on solubility differences between the cocaine and excipients may be required.</p> <p>17.8.6 Reporting</p> <p>17.8.6.1 Materials containing cocaine base (including mixtures of cocaine base and cocaine hydrochloride) will be reported as "Cocaine base."</p> <p>17.8.6.2 Materials containing cocaine hydrochloride (unless mixed with cocaine base) will be reported as "Cocaine Hydrochloride."</p> | |

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| <p>17.9 Quantitation:</p> <p>17.9.1 Cocaine Quantitation (Free Base Equivalent)</p> <p>17.9.1.1 See GC section 10 for general quantitation procedure.</p> <p>17.9.1.2 Reagents:</p> <ul style="list-style-type: none"> • Methylene Chloride or Chloroform • Dicyclohexylphthalate (DCHP) • Cocaine HCl 100% (USP, Alltech) <p>17.9.1.3 Internal Standard Solution:</p> <p>17.9.1.3.1 Prepare a sufficient volume to dilute the cocaine standard solution and all samples.</p> <p>17.9.1.3.2 Prepare a 1.5 - 2 mg/mL solution of DCHP in methylene chloride or chloroform in the appropriate volumetric flask.</p> <p>17.9.1.4 Cocaine Standard Solution:</p> <p>17.9.1.4.1 Weigh 10 mg of cocaine HCl and transfer to a 10 mL volumetric flask with internal standard solution. This results in a solution of 1 mg/mL cocaine HCl in internal standard solution.</p> <p>17.9.1.4.2 Prepare a solution of another concentration within the linear range in the same manner to use as the check standard.</p> <p>17.9.1.5 Mathematical Conversion:</p> <p>To convert cocaine HCl to free base, multiply the weight amount of cocaine HCl by 0.893 (303.4 F.B./339.8 HCl). This will give the free base weight of cocaine in the standard solution. A label indicating mg/mL of cocaine free base standard should be placed on the standard solution vial.</p> <p>17.9.1.6 Sample Preparation:</p> <p>Weigh approximately 10 mg of sample into a test tube. Dilute with internal standard to appropriate volume.</p> <p>17.9.1.7 GC parameters:</p> <ul style="list-style-type: none"> • Column: 15 m HP-1 or HP-5 capillary (0.25 mm i.d, 0.25 µm film thickness) • Oven temperature: 220 – 245 °C • FID temperature : 270°C <p>17.9.1.8 Cocaine elutes prior to DCHP.</p> <p>17.9.2 Cocaine Quantitation</p> <p>17.9.2.1 See GC section 10 for general quantitation procedure.</p> <p>17.9.2.2 Reagents:</p> <ul style="list-style-type: none"> • Methylene Chloride or Chloroform | |

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| <div> <ul style="list-style-type: none"> • Dicyclohexylphthalate (DCHP) • Cocaine HCl 100% (USP, Alltech) </div> <div> 17.9.2.3 Internal Standard Solution: <div> 17.9.2.3.1 Prepare a sufficient volume to dilute the cocaine standard solution and all samples. 17.9.2.3.2 Prepare a 1.5 - 2 mg/mL solution of DCHP in methylene chloride or chloroform in the appropriate volumetric flask. </div> </div> <div> 17.9.2.4 Cocaine Standard Solutions: <div> 17.9.2.4.1 Weigh ~ 10 mg of cocaine HCl and transfer to a 10 mL volumetric flask with internal standard solution. Dilute to mark with internal standard solution. This results in a solution of 1.0 mg/mL cocaine HCl in internal standard solution. 17.9.2.4.2 Prepare a solution of another concentration in the same manner to use as the check standard. </div> </div> <div> 17.9.2.5 Sample preparation: <p>Weigh approximately 10 mg of sample into appropriate volumetric glassware. Dilute with internal standard solution to appropriate volume.</p> </div> <div> 17.9.2.6 GC parameters: <ul style="list-style-type: none"> • Column: 15 m HP-1 or HP-5 capillary (0.25 mm i.d, 0.25 µm film thickness) • Oven temperature: 220 – 245 °C • FID temperature : 270°C </div> <div> 17.9.2.7 Cocaine elutes prior to DCHP. </div> <div>◆ End</div> | |